

Perinatal Transmission of Sheep Associated Malignant Catarrhal Fever Virus (OHV-2) in Dairy Cattle.

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Malignant catarrhal fever (MCF) has been known for many years as a lethal, lymphoproliferative viral disease affecting cattle, deer, bison and elk. Two epidemiological forms of MCF exist: sheep associated-MCF (SA-MCF) and wildebeest-derived MCF (WD-MCF). SA-MCF is caused by ovine herpesvirus type 2 (OHV-2) and is the predominant form observed in the United States. It was previously believed that OHV-2 infection in cattle invariably results in fatal MCF. However, it is now believed animals can be asymptotically infected without developing clinical signs of the disease. Sheep carry the virus subclinically and over 95% of sheep are infected. While it was previously believed cattle had to be in direct contact with sheep to become infected, there are reports of MCF in cattle that are not in direct contact with sheep.

SA-MCF is observed in Colorado. One local dairy sees as many as 5 to 8 clinical cases each year. Animals from this dairy are located over 70 yards from a sheep feedlot.

Previous studies show the prevalence of asymptomatic OHV-2 infection in adult cattle from this herd is 21.3%. However, it is not known whether asymptomatic carriers can transmit OHV-2 to other cattle or to their calves. The hypotheses of this study are that OHV-2 is transmitted to calves either in utero, or by ingestion of infected milk or colostrum, and that OHV-2 specific antibodies are transferred from asymptotically infected cows to their calves via colostrum.

The objective of this study was to monitor OHV-2 PCR and CI-ELISA status of calves to investigate the potential for perinatal transmission. Nineteen calves (8 bulls and 11 heifers) and their dams were randomly selected based on time of birth. Blood samples were obtained from calves immediately after birth prior to colostrum ingestion, 48 hours post-calving, and weekly thereafter for 16 weeks. Blood and colostrum samples were obtained from the dam at birth, also. Calves from first calf heifers received colostrum from other mature cows (surrogate colostrum) also calving that day, and blood and colostrum samples were taken from those surrogate dams.

We found 3 cows were OHV-2 CI-ELISA positive at birth consistent with asymptomatic infections. All calves were OHV-2 ELISA and PCR negative at birth. Seven calves became OHV-2 ELISA positive at 48 hours indicating colostrum transfer of OHV-2 specific antibodies. None of the colostrum samples were OHV-2 positive by PCR. These calves became ELISA negative between 6 to 12 weeks of age. None of the calves subsequently became OHV-2 CI-ELISA positive after 16 weeks or PCR positive after 4 weeks.

This data indicates that in utero transmission of OHV-2 is rare. Calves may seroconvert to OHV-2 following colostrum ingestion. There was no indication of OHV-2 transmission during the milk-feeding period. This data suggest asymptomatic OHV-2 transmission occurs later in life.